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BARR

December 10, 2012

Mr. Jason Gunter
Remedial Project Manager
U.S. Environmental Protection Agency
Region 7 - Superfund Branch
901 North 5th Street
Kansas City, KS 66101

Re: National Mine Tailings Site Progress Report

Dear Mr. Gunter:

As required by Article VI, Section 51 of the Unilateral Administrative Order (Docket No.CERCLA-07-2006-0231) for the referenced project and on behalf of The Doe Run Company and NL Industries, Inc., the progress report for the period September 1, 2012 through September 30, 2012 is enclosed. If you have any questions or comments, please call me at 573-638-5020 or Mark Nations at 573-518-0600.

Sincerely,

Ty L. Morris, P.E., R.G.
Vice President

TLM/jms
Enclosure
c: Mark Nations – TDRC
Matt Wohl – TDRC (electronic only)
Kevin Lombardozzi – NL Industries, Inc.
John Kennedy – City of Park Hills
Norm Lucas – Park Hills – Leadington Chamber of Commerce
Kathy Rangen – MDNR
Tim Skoglund – Barr Engineering

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National Mine Tailings Site
Park Hills, Missouri
Removal Action - Monthly Progress Report
Period: September 1, 2012 – September 30, 2012

1. **Actions Performed and Problems Encountered This Period:**
   a. Work at the site continued on the West Area. This work focused on the task of rocking the area that had been surveyed. This included placing a 6-inch layer of crushed rock filter on the graded surface and a 12-inch layer of slope riprap on top of the crushed rock filter. As of the end of the period, work on this task had been completed.
   b. Work at the site continued on the task of repairing Commerce Drive. This work focused on the task of identifying portions of the concrete curbing that had been damaged during the completion of the onsite activities and making preparations for the repair of the identified portions. As of the end of the period, the City of Park Hills and Doe Run had agreed upon the portions that needed to be repaired and the curbing had been cleaned in preparation of repair activities. Once the repair work on the curbing has been completed, repaving activities will commence.
   c. Work at the site also continued on the Mine Shaft Area. Previously, an investigation of the area was completed to determine what work remains. During that investigation, it was determined that due to the lack of observable mine waste on the site and the extensive nature of vegetative cover no additional removal activities were needed. In addition, the concrete structure believed to be mine shaft needed some repair. These findings were discussed with the EPA project coordinator during a visit to the site on September 11, 2012. During that discussion, this approach to finishing the work in this area was agreed upon.
   d. Work at the site began on the task of demobilizing the office, shop and equipment from the site.

2. **Analytical Data and Results Received This Period:**
   a. During this period, water samples were collected at the sampling locations identified in Appendix C of the Removal Action Work Plan where water was present. Copies of the analytical results from the last sampling event are included with this progress report.

3. **Developments Anticipated and Work Scheduled for Next Period:**
   a. Complete work on the mine shaft cap in the Mine Shaft Area.
   b. Complete monthly water sampling activities as described in the Removal Action Work Plan.
   c. Complete air monitoring activities as described in the Removal Action Work Plan.
   d. Continue demobilization activities.

4. **Changes in Personnel:**
   a. None.

5. **Issues or Problems Arising This Period:**
   a. None.

6. **Resolution of Issues or Problems Arising This Period:**
   a. None.

End of Monthly Progress Report

October 10, 2012

Stephen Moilanen
Barr Engineering Company
1001 Diamond Ridge
Suite 1100
Jefferson City, MO 65109
TEL: (573) 638-5035
FAX: (573) 638-5001

RE: National MTS - 25/86-0003 **WorkOrder:** 12091381

Dear Stephen Moilanen:

TEKLAB, INC received 1 sample on 9/28/2012 10:30:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Michael L. Austin
Project Manager
(618)344-1004 ex 16
MAustin@teklabinc.com

Client: Barr Engineering Company
Client Project: National MTS - 25/86-0003

Work Order: 12091381
Report Date: 10-Oct-12

This reporting package includes the following:

Client: Barr Engineering Company
Work Order: 12091381
Client Project: National MTS - 25/86-0003
Report Date: 10-Oct-12

Abbr Definition

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MB	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# - Unknown hydrocarbon	B - Analyte detected in associated Method Blank
E - Value above quantitation range	H - Holding times exceeded
M - Manual Integration used to determine area response	ND - Not Detected at the Reporting Limit
R - RPD outside accepted recovery limits	S - Spike Recovery outside recovery limits
X - Value exceeds Maximum Contaminant Level	

Client: Barr Engineering Company
Client Project: National MTS - 25/86-0003

Work Order: 12091381
Report Date: 10-Oct-12

Cooler Receipt Temp: 5.8 °C

Locations and Accreditations

Collinsville		Springfield		Kansas City	
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	Address	3920 Pintail Dr Springfield, IL 62711-9415	Address	8421 Nieman Road Lenexa, KS 66214
Phone	(618) 344-1004	Phone	(217) 698-1004	Phone	(913) 541-1998
Fax	(618) 344-1005	Fax	(217) 698-1005	Fax	(913) 541-1998
Email	jhriley@teklabinc.com	Email	kmcclain@teklabinc.com	Email	dthompson@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2013	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2013	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2013	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2013	Springfield
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2013	Collinsville
Arkansas	ADEQ	88-0966		3/14/2013	Collinsville
Illinois	IDPH	17584		4/30/2013	Collinsville
Kentucky	UST	0073		5/26/2013	Collinsville
Missouri	MDNR	00930		4/13/2013	Collinsville
Oklahoma	ODEQ	9978		8/31/2013	Collinsville

Client: Barr Engineering Company
Work Order: 12091381
Client Project: National MTS - 25/86-0003
Report Date: 10-Oct-12
Lab ID: 12091381-001
Client Sample ID: Nat-East
Matrix: AQUEOUS
Collection Date: 09/25/2012 13:45

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	100		**198**	mg/L	10	10/04/2012 2:45	R168909
STANDARD METHOD 4500-H B, LABORATORY ANALYZED								
Lab pH		1.00		**8.09**		1	09/28/2012 16:10	R168684
STANDARD METHODS 2340 C								
Hardness, as (CaCO3)		5		**580**	mg/L	1	10/01/2012 13:00	R168750
STANDARD METHODS 2540 C (TOTAL)								
Total Dissolved Solids		20		**528**	mg/L	1	10/01/2012 18:49	R168795
STANDARD METHODS 2540 D								
Total Suspended Solids		6		**< 6**	mg/L	1	09/28/2012 15:20	R168689
STANDARD METHODS 2540 F								
Solids, Settleable		0.1	H	**< 0.1**	ml/L	1	09/28/2012 14:05	R168673
STANDARD METHODS 5310 C, ORGANIC CARBON								
Total Organic Carbon (TOC)		1.0		**1.0**	mg/L	1	10/05/2012 19:56	R169034
EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)								
Cadmium	NELAP	2.00		**< 2.00**	µg/L	1	10/07/2012 2:39	82017
Zinc	NELAP	10.0		**39.1**	µg/L	1	10/07/2012 2:39	82017
EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)								
Cadmium	NELAP	2.00		**< 2.00**	µg/L	1	10/07/2012 4:00	82055
Zinc	NELAP	10.0		**40.1**	µg/L	1	10/07/2012 4:00	82055
STANDARD METHODS 3030 E, 3113 B, METALS BY GFAA								
Lead		2.00	X	**6.56**	µg/L	1	09/29/2012 10:32	82018
STANDARD METHODS 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)								
Lead		2.00	X	**7.31**	µg/L	1	09/29/2012 15:14	82024

Sample Summary

Client: Barr Engineering Company
Client Project: National MTS - 25/86-0003

Work Order: 12091381
Report Date: 10-Oct-12

Lab Sample ID	Client Sample ID	Matrix	Fractions	Collection Date
12091381-001	Nat-East	Aqueous	5	09/25/2012 13:45

Client: Barr Engineering Company
Client Project: National MTS - 25/86-0003

Work Order: 12091381
Report Date: 10-Oct-12

Sample ID	Client Sample ID / Test Name	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
12091381-001A	Nat-East	09/25/2012 13:45	09/28/2012 10:30		
	Standard Methods 2540 F				09/28/2012 14:05
12091381-001B	Nat-East	09/25/2012 13:45	09/28/2012 10:30		
	EPA 600 375.2 Rev 2.0 1993 (Total)				10/04/2012 2:45
	Standard Method 4500-H B, Laboratory Analyzed				09/28/2012 16:10
	Standard Methods 2340 C				10/01/2012 13:00
	Standard Methods 2540 C (Total)				10/01/2012 18:49
	Standard Methods 2540 D				09/28/2012 15:20
12091381-001C	Nat-East	09/25/2012 13:45	09/28/2012 10:30		
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)			10/01/2012 10:38	10/07/2012 4:00
	Standard Methods 3030 E, 3113 B, Metals by GFAA			09/28/2012 16:18	09/29/2012 10:32
12091381-001D	Nat-East	09/25/2012 13:45	09/28/2012 10:30		
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)			09/28/2012 15:51	10/07/2012 2:39
	Standard Methods 3030 B, 3113 B, Metals by GFAA (Dissolved)			09/28/2012 19:30	09/29/2012 15:14
12091381-001E	Nat-East	09/25/2012 13:45	09/28/2012 10:30		
	Standard Methods 5310 C, Organic Carbon				10/05/2012 19:56

Client: Barr Engineering Company
Client Project: National MTS - 25/86-0003

Work Order: 12091381
Report Date: 10-Oct-12

EPA 600 375.2 REV 2.0 1993 (TOTAL)

Batch R168849 **SampType:** MBLK Units mg/L
SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		< 10						10/01/2012

Batch R168849 **SampType:** LCS Units mg/L
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		20	20	0	101.3	90	110	10/01/2012

Batch R168909 **SampType:** MBLK Units mg/L
SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		< 10						10/03/2012

Batch R168909 **SampType:** LCS Units mg/L
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		20	20	0	99.7	90	110	10/03/2012

Batch R168909 **SampType:** MS Units mg/L
SampID: 12091381-001BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	100		288	100	197.7	90.1	90	110	10/04/2012

Batch R168909 **SampType:** MSD Units mg/L RPD Limit 10
SampID: 12091381-001BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate	100		294	100	197.7	96.7	287.8	2.26	10/04/2012

STANDARD METHOD 4500-H B, LABORATORY ANALYZED

Batch R168684 **SampType:** LCS Units
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab pH	1.00		7.00	7.00	0	100.0	99.1	100.8	09/28/2012

Batch R168684 **SampType:** DUP Units RPD Limit 10
SampID: 12091381-001BDUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH	1.00		8.10				8.090	0.12	09/28/2012

Client: Barr Engineering Company
Client Project: National MTS - 25/86-0003

Work Order: 12091381
Report Date: 10-Oct-12

STANDARD METHODS 2340 C

Batch R168750 **SampType:** MBLK Units mg/L
SampID: MB-R168750

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Hardness, as (CaCO3)	5		< 5						10/01/2012

Batch R168750 **SampType:** LCS Units mg/L
SampID: LCS-R168750

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Hardness, as (CaCO3)	5		1000	1000	0	100.0	90	110	10/01/2012

Batch R168750 **SampType:** MS Units mg/L
SampID: 12091381-001BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Hardness, as (CaCO3)	5		960	400	580.0	95.0	85	115	10/01/2012

Batch R168750 **SampType:** MSD Units mg/L RPD Limit 10
SampID: 12091381-001BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Hardness, as (CaCO3)	5		960	400	580.0	95.0	960.0	0.00	10/01/2012

STANDARD METHODS 2540 C (TOTAL)

Batch R168795 **SampType:** MBLK Units mg/L
SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids	20		< 20						10/02/2012

Batch R168795 **SampType:** MBLK Units mg/L
SampID: MBLK-END

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids	20		< 20						10/02/2012

Batch R168795 **SampType:** LCS Units mg/L
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids	20		922	1000	0	92.2	90	110	10/01/2012
Total Dissolved Solids	20		934	1000	0	93.4	90	110	10/01/2012

Batch R168795 **SampType:** MS Units mg/L
SampID: 12091381-001BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids	20		1020	500	528.0	98.0	85	115	10/01/2012

Client: Barr Engineering Company
Client Project: National MTS - 25/86-0003

Work Order: 12091381
Report Date: 10-Oct-12

STANDARD METHODS 2540 C (TOTAL)

Batch R168795 **SampType:** MSD Units mg/L RPD Limit 15
SampID: 12091381-001BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Total Dissolved Solids	20		**1020**	500	528.0	99.2	1018	0.59	10/01/2012

STANDARD METHODS 2540 D

Batch R168689 **SampType:** MBLK Units mg/L
SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Suspended Solids	6		**< 6**						09/28/2012

Batch R168689 **SampType:** LCS Units mg/L
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Suspended Solids	6		**94**	100	0	94.0	85	115	09/28/2012
Total Suspended Solids	6		**91**	100	0	91.0	85	115	09/28/2012
Total Suspended Solids	6		**101**	100	0	101.0	85	115	09/28/2012
Total Suspended Solids	6		**104**	100	0	104.0	85	115	09/28/2012

Batch R168689 **SampType:** DUP Units mg/L RPD Limit 15
SampID: 12091381-001B DUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Total Suspended Solids	6		**< 6**				0	0.00	09/28/2012

STANDARD METHODS 5310 C, ORGANIC CARBON

Batch R169034 **SampType:** MBLK Units mg/L
SampID: ICB/MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Organic Carbon (TOC)	1.0		**< 1.0**						10/05/2012

Batch R169034 **SampType:** LCS Units mg/L
SampID: ICV/LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Organic Carbon (TOC)	10.0		**62.1**	59.7	0	104.0	90	110	10/05/2012

Batch R169034 **SampType:** MS Units mg/L
SampID: 12091381-001EMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Organic Carbon (TOC)	1.0		**5.8**	5.0	1.050	94.2	85	115	10/05/2012

Batch R169034 **SampType:** MSD Units mg/L RPD Limit 10
SampID: 12091381-001EMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Total Organic Carbon (TOC)	1.0		**5.7**	5.0	1.050	93.2	5.760	0.87	10/05/2012

Client: Barr Engineering Company
Client Project: National MTS - 25/86-0003

Work Order: 12091381
Report Date: 10-Oct-12

EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)

Batch 82017 **SampType:** MBLK Units µg/L
SampID: MB-82017

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		< 2.00	2.00	0	0	-100	100	10/07/2012
Zinc	10.0		< 10.0	10.0	0	0	-100	100	10/07/2012

Batch 82017 **SampType:** LCS Units µg/L
SampID: LCS-82017

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		46.5	50.0	0	93.0	85	115	10/07/2012
Zinc	10.0		487	500	0	97.4	85	115	10/07/2012

Batch 82017 **SampType:** MS Units µg/L
SampID: 12091381-001DMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		46.6	50.0	0	93.2	75	125	10/07/2012
Zinc	10.0		530	500	39.1	98.3	75	125	10/07/2012

Batch 82017 **SampType:** MSD Units µg/L RPD Limit 20
SampID: 12091381-001DMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Cadmium	2.00		44.1	50.0	0	88.2	46.6	5.51	10/07/2012
Zinc	10.0		503	500	39.1	92.8	530.5	5.28	10/07/2012

EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)

Batch 82055 **SampType:** MBLK Units µg/L
SampID: MB-82055

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		< 2.00	2.00	0	0	-100	100	10/07/2012
Zinc	10.0		< 10.0	10.0	0	0	-100	100	10/07/2012

Batch 82055 **SampType:** LCS Units µg/L
SampID: LCS-82055

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		50.1	50.0	0	100.2	85	115	10/07/2012
Zinc	10.0		527	500	0	105.4	85	115	10/07/2012

Batch 82055 **SampType:** MS Units µg/L
SampID: 12091381-001CMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		50.0	50.0	0	100.0	75	125	10/07/2012
Zinc	10.0		565	500	40.1	105.1	75	125	10/07/2012

Client: Barr Engineering Company
Client Project: National MTS - 25/86-0003

Work Order: 12091381
Report Date: 10-Oct-12

EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)

Batch 82055 **SampType:** MSD Units µg/L RPD Limit 20
SampID: 12091381-001CMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Cadmium	2.00		**48.7**	50.0	0	97.4	50	2.63	10/07/2012
Zinc	10.0		**553**	500	40.1	102.6	565.4	2.24	10/07/2012

STANDARD METHODS 3030 E, 3113 B, METALS BY GFAA

Batch 82018 **SampType:** MBLK Units µg/L
SampID: MB-82018

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		**< 2.00**	2.00	0	0	-100	100	09/29/2012

Batch 82018 **SampType:** LCS Units µg/L
SampID: LCS-82018

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		**15.4**	15.0	0	102.5	85	115	09/29/2012

Batch 82018 **SampType:** MS Units µg/L
SampID: 12091381-001CMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		**22.1**	15.0	6.5554	103.7	70	130	09/29/2012

Batch 82018 **SampType:** MSD Units µg/L RPD Limit 20
SampID: 12091381-001CMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lead	2.00		**21.0**	15.0	6.5554	96.2	22.116	5.21	09/29/2012

STANDARD METHODS 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)

Batch 82024 **SampType:** MBLK Units µg/L
SampID: MB-82024

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		**< 2.00**	2.00	0	0	-100	100	09/29/2012

Batch 82024 **SampType:** LCS Units µg/L
SampID: LCS-82024

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		**13.1**	15.0	0	87.6	85	115	09/29/2012

Batch 82024 **SampType:** MS Units µg/L
SampID: 12091381-001DMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		**21.1**	15.0	7.3123	91.8	70	130	09/29/2012

Client: Barr Engineering Company
Work Order: 12091381
Client Project: National MTS - 25/86-0003
Report Date: 10-Oct-12

STANDARD METHODS 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)

Batch 82024 **SampType:** MSD Units µg/L RPD Limit 20

SampID: 12091381-001DMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lead	2.00		**20.9**	15.0	7.3123	90.8	21.0874	0.72	09/29/2012

Teklab, Inc.
Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Barr Engineering Company
Client Project: National MTS - 25/86-0003

Work Order: 12091381
Report Date: 10-Oct-12

Carrier: Ron Korte

Completed by: Timothy W. Mathis
On: 28-Sep-12

Received By: BSJ

Reviewed by: Michael L. Austin
On: 01-Oct-12

Pages to follow: Chain of custody [1] Extra pages included [0]

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C	5.8	
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice	☐	
Chain of custody present?	Yes ☑	No ☐				
Chain of custody signed when relinquished and received?	Yes ☑	No ☐				
Chain of custody agrees with sample labels?	Yes ☑	No ☐				
Samples in proper container/bottle?	Yes ☑	No ☐				
Sample containers intact?	Yes ☑	No ☐				
Sufficient sample volume for indicated test?	Yes ☑	No ☐				
All samples received within holding time?	Yes ☐	No ☑				
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑			
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐				

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☐	No ☐	No VOA vials	☑
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers	☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐		
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA	☑

Any No responses must be detailed below or on the COC.

Samples received did not meet hold time requirements for Settleable Solids analysis. Client was notified of this exceedence via work order summary.
TWM 9/28/12

Teklab Chain of Custody

Pg. ____ of ____ Workorder 12091381

5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618)344-1004 ~ Fax:(618)344-1005

Are the samples chilled? (•) Yes ( ) No with: (•) Ice ( ) Blue ice

Preserved in (•) Lab (x) Field

BSS 9.28.12

Cooler Temp 5.8 Sampler SBM

MO 65109

Comments: Invoice to Mark Nations. Results to Allison Olds and Mark Nations, mnations@doerun.com. Matrix is surface water. Metals: Cd, Pb, Zn

eMail aolds@barr.com Phone 573-638-5007 Requested Due Date Standard Billing/PO Per contract with Doe Run

	Sample Date/Time	Preservative	Matrix	pH	T.S.S.	Sulfate	Settleable Solids	T.O.C.	Total Metals	Dissolved Metals	Hardness	Total Dissolved Solids			
	9-25-12 13:45	Unpres	Aqueous	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☐
		Unpres	Aqueous	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		Unpres	Aqueous	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		Unpres	Aqueous	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		Unpres	Aqueous	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		Unpres	Aqueous	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		Unpres	Aqueous	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		Unpres	Aqueous	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

y*	Date/Time	Received By	Date/Time
	9-25-12 16:00	[signature]	9/28/12 845
	9/28/12 1030	Brenda [signature]	09/28/12 1030

ehalf of client acknowledges that they have read and understand the terms of this agreement and that they have the authority to sign on behalf of client.